SCHOOL OF ECONOMICS & MANAGEMENT LISBON

MASTER

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DISSERTATION

THE CAPITAL STRUCTURE CHOICES OF LARGE EUROPEAN FIRMS OVER THE CRISIS: EVIDENCE FROM FRANCE, GERMANY, IRELAND AND PORTUGAL

MARIA FÉLIX MARIZ

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Resumo

O objectivo desta dissertação de mestrado é identificar os factores que têm impacto sobre a decisão de estrutura de capital das empresas francesas, alemãs, irlandesas e portuguesas cotadas em bolsa. Pretendemos também identificar diferenças nesta escolha empresarial causada pela recente crise financeira internacional.

Para atingir o objectivo principal desta dissertação, este trabalho apresenta um resumo da pesquisa empírica realizada em torno do tema estrutura de capital, seguida por uma secção onde a metodologia utilizada no estudo é descrita, bem como as principais informações detalhadas sobre os dados recolhidos. Posteriormente, os resultados e as principais conclusões da dissertação serão apresentados nas últimas duas seções.

Em geral, os resultados transmitem a ideia de que as empresas, ao decidir como financiar as suas necessidades de financiamento, levam em consideração um grupo de factores específicos de cada empresa e características dos respectivos países. Durante a análise das regressões estimadas, os factores macroeconómicos juntamente com o país de origem mostraram ser estatisticamente significativo. Quanto aos factores específicos das empresas, apenas alguns foram considerados significantes para a decisão relativa à estrutura de capital. De destacar que estas decisões de estrutura de capital são influenciados pelo período temporal que as empresas enfrentam, que responde a uma das principais perguntas desta pesquisa, que foi identificar diferenças antes e depois do início da crise internacional.

Abstract

The aim of this master thesis is to identify the factors that have an impact on the capital structure decision of French, German, Irish and Portuguese listed companies. We also aim to identify differences in this corporate choice caused by the recent international financial crisis.

In order to achieve the main purpose of this dissertation, this thesis presents a summary of the empirical research conducted around the capital structure theme, followed by a section where the methodology used in the study is described as well as the detailed key information about the collected data. Subsequently the results and main conclusions of the dissertation will be presented, in the last two sections.

In general the outcomes transmit the idea that companies, when deciding how to finance their funding necessities, take in consideration a group of firm and country factors. Throughout the analysis of the estimated regression, the macroeconomic factors along with the country of origin are shown to be statistically significant. As for firm factors, only a few were considered significant when deciding about capital structure. It is worth highlighting that this capital structure decisions are influenced by the time period companies face, which answers one of the major questions of this research, that was to identify differences before and after the beginning of the international crisis.

Key Words: Capital Structure, Debt, Firm-specific factors, Country-specific factors.

Table of Contents

Figures Index

List of Abbreviations

CPI – Consumer Price Index

FDC – Financial Distress Costs

FE – Fixed Effects

GDP – Gross Domestic Product

ITS – Interest Tax Shield

NPV – Net Present Value

PV – Present Value

RE – Random Effects

V^L – Levered Value

V^U – Unlevered Value

1. Introduction

Companies have necessity to raise funds to face their corporate needs and the way in which they choose these funds, which can either be debt, equity and other outstanding securities of the firm, establish their capital structure.

The main motivation behind this study has to do with the fact that capital structure is a very common topic in the corporate environment, since is known that the way in which companies affect their capital is influenced by their own characteristics and the economic/social reality where they operate. However researchers have difficult to explain the capital structure behaviour of one firm since there are no standard actions. For this reason, and since Europe is recovering from a Financial Crisis, I found interesting to analyse what was the impact of the crisis in the way firms balancing the factors, in order to choose their level of leverage.

In this dissertation I analyse the capital structure of the largest listed companies in four relevant and very different European countries – France, Germany, Ireland and Portugal – in 2003-2012, a period that encompasses the global financial crisis. We find this topic relevant for numerous reasons. First of all, because of the period under analysis, a period in which financial markets revealed some fragility; second, because the different European countries targeted in this study performed differently during the crisis and have natural differences in terms of location (centrality versus periphery of Europe) and also in terms of being or not intervened in financial assistance programs conducted by the "troika". We hope to be able to identify to what extent the capital structures of firms in these countries differ and were subject to changes during the period of the analysis.

Empirical research indicates that firms invest substantial resources in managing their capital structure, revealing its importance to firm value and upcoming performance.

However, depending on the industry in which the company operates, the choices of capital structure differ.

One option that managers can follow, regarding financing the firm, is using exclusively equity, which is also designated as unlevered equity, because of the nonexistence of debt. However, firm's managers can raise simultaneously equity and debt, and have outstanding debt - this sort of equity is named levered equity. In this case, there is a priority in the repayment to debt holders and only then to equity holders.

According to Modigliani and Miller (1958), capital structure is not relevant in perfect capital markets; however there are market imperfections, and thus there is indeed a concern regarding capital allocation in a firm. One of the market imperfections that strives a great impact in the funding's type utilized by firms is the amount of taxes[1] paid on the income earned by them from their investments. The fact that companies pay taxes after the deduction of interest on their profit becomes an incentive to use debt, because interest expenses, originated by debt, will reduce the quantity of corporate tax that firms will have to pay. This will originate a gain to investors, namely the interest tax shield, which is the supplementary amount that a firm would have to pay in taxes if it did not resort to leverage. Needless to say, this tax benefit of debt over equity – ITS - would only apply in case firms are actually making profits.

Analysing from a different perspective, other market imperfections associated with debt obligations, are the so called costs of financial distress, i.e. direct costs of bankruptcy, which embrace all legal and accounting expenses, and also indirect costs of financial distress which may include costs related with losses of customers,

[1] The mentioned taxes include corporation taxes and individual taxes. This last one relies on interest payments received from debt by the creditors and equity investors pay taxes on dividends and capital gains.

suppliers, employees and receivables, also fire sales of assets, costs derived from a delayed liquidation, and finally other indirect costs associated with creditors.

Agency costs and benefits of leverage are also important to determine the capital structure of a firm. High levels of debt can persuade managers and equity holders to take extreme levels of risk or investment that are undervalued. On the other hand, low values of debt may motivate wasteful expenses, when free cash flows are too high.

After realising all the benefits and the costs associated to debt, companies have to determine the desired debt's level in order to maximize their value.

This study will emphasize the determinants behind the generic capital structure choice, but will also focus in the way each firm-specific factor and country-specific factor influence the choice of the companies that are encompassed in the selected sample and subsamples. We expect to check differences in the allocation of the capital, when observing the four countries as well as when comparing the two sub-period samples – before and after the European financial crisis – since in one case or in the other, companies are subject to different environments, either by the country that the company belongs to, or by the period in which the analysis was performed.

We find that individual features of a firm such as the firm's industry, its asset's structure, uniqueness and size, influence its behaviour in the choice of both funding alternatives, debt or equity. Also, some of the macroeconomic variables that allow to distinguish the economic situation of the diverse countries, namely GDP, Inflation and CPI provide significance to the explanation of the debt level admitted by companies. All in all, these are the general conclusions of the study since according on the period under review, the variables gain or lose importance in the capital structure choice.

2. Literature Review: Capital Structure

In the financial environment, and especially, in corporate finance, the capital structure implemented by the firm is a very important topic studied by many researchers. Nonetheless, knowledge in this field is limited, as no theory or motive universally explains the choice of capital structure for all firms at all points in time. A good classic reference on this matter is Myers (1984) that analyses how different firms may select to issue debt, equity or hybrid. In sum, none of the theories that try to explain how capital structure decisions are made, gives a general clarification of financing strategy, because there are conditional strategies (Myers 2001). Therefore I present first a brief summary of the most influential articles and theories that identify relevant factors for the choice of capital structure. The second part of this section includes a summary of the empirical literature.

2.1 The Perfect World of Modigliani and Miller

The founding theory of capital structure was presented by Modigliani and Miller (1958), in their Propositions I and II, which is valid for a scenario of perfect capital markets[2]. These authors had an enormous contribution to the development of numerous theories that attempt to explain capital structure decisions, despite the fact that these propositions do not clarify the motivations behind the debt-equity choices, yet they show how the company's value behaves according to their capital structure. Modigliani and Miller show that the capital structure decision would be irrelevant; however, by supressing market imperfections form their analysis, are able to identify the factors that actually would influence the capital structure choice.

[2] Modigliani and Miller consider that their propositions hold in perfect capital markets, which follow conditions such as: 1) Investors and companies can trade securities at competitive market prices which are equal to the present value of future cash flows; 2) in security's trading there are no taxes, transaction or issuance costs; 3) Decisions played by firms do not have influence on cash flows generated by its investments.

Proposition I, from Modigliani and Miller, states that "In a perfect capital market, the total value of a firm is equal to the market value of total cash flows generated by its assets and is not affected by its choice of capital structure", revealing that in the presence of perfect capital markets, an improbably reality, the firms are indifferent in their choice regarding raising equity or, on the other hand increase equity plus debt to face their needs, because by the Law of One Price both securities and assets of a company must have equally market values.

2.2 Trade-off Theory: Static and Dynamic

The theory demonstrates that the trade-off model is subdivided in the static version and in a dynamic one. Relying on Myers (1984), static trade-off theory is when companies established a debt-to-equity ratio and progressively will meet it. The optimal leverage ratio is determined by firms, through a balance between costs and benefits of borrowing, such that it enhances the company's value.

Throughout the process of decision concerning financing policy, companies perceive costs and benefits of debt that they weight in their adjustment decision. These debt costs are the same utilized in the static trade-off theory, they correspond to direct and indirect bankruptcy costs. On the other hand the significant benefit of debt comprises the tax shield effect. Following Modigliani and Miller (1958) and their identification of the ITS effect, and Opler and Titman's (1994) assessment of costs of financial distress (FDC), we can establish that the levered value of a firm can be reached as:

(1) $V^L = V^U + PV(ITS) - PV(FDC)$

where V^U is the unlevered firm value, i.e. 100% equity financed and PV symbolizes the present value.

Observing formula (1), it is verifiable that firms have incentive to raise leverage in order to achieve the benefits that result from debt, nevertheless too much debt contributes to the increasing of the risk of default and consequently FDC.

In accordance to Berk and DeMarzo (2014), this theory is useful to solve two enigmas concerning leverage. First, the existence of FDC explains the reason for some companies' record low levels of debt, despite the existence of the ITS's benefit, in a way that the advantage of the ITS is not entirely exploit. Second, the differences of leverage registered in dissimilar industries arise from the differences in the volatility of the cash flows and the scale of the FDC.

In addition to FDC there are other situations, linked to debt holders' behaviour, which create additional costs, namely agency costs of leverage, and they tend to arise with higher probability when the risk of financial distress is bigger. These types of costs emerge due to the conflict of interests that numerous times occurs between shareholders and debt holders, because, according to the investment decisions made by the manager, the impact on the value of equity and debt will be distinct. Managerial actions can favour shareholders since equity holders are the ones who hire the manager; however this originates reprisals from credit holders and at the end will disparage the value of the company.

For further understanding of how agency costs are influential (see e.g., Jensen and Mecking (1976) who addressed the agency paradigm of the analysis in the context of capital structure), it is essential to mention the variety of forms in which agency costs can occur. The first form is through the excessive risk-taking when managers invests in new projects hoping to achieve something for the equity holders, even though the expected value of the total assets decreases, with creditors being penalized because if the manager approach flops they won't be fully repaid. The

second type of agency cost, known as underinvestment, comes from the rejection of new positive-NPV projects in a financial distress situation. This is harmful to debt holders and to the company's value because of wasted opportunities. Finally, it is visible how leverage impels managers and shareholders to act in their own behalf, decreasing the overall value of the firms.

Although there are costs associated to the agency issue of conflicts between equity and debt holders, it is also possible to point some benefits that appear from the parting of control (Manager) and ownership (Shareholders). As mentioned before, the manager can run the company in his favour using leverage, however the inverse situation is also accomplished, i.e., debt can be used as an incentive for managers to run it more efficiently. As in the agency costs part, the respective benefits can be observed in a firm over different forms, being the first, the commitment of the manager to the company, because debt can thrill him to operate more cautious and strategically, because of the risk of financial distress (Jensen, 1986). Secondly, leverage is an alternative form to raise funds without changing the ownership, keeping the ownership concentrated and in that order shareholders do not renounce their majority enabling them to maintain a solid influence, which will be reflected in "doing what is best for the firm".

After realising the existence of other implications, besides FDC, to be taken in consideration in the choice of the capital structure is mandatory to readjust equation (1) and include the agency costs and benefits into trade-off theory, when representing levered value of a firm:

(2) $V^L = V^U + PV(ITS) - PV(FDC) - PV(\text{Agency Costs of Debt}) + PV(\text{Agency Benefits of Debt})$

Even as companies gear their capital structure for a target debt ratio, they may face disabilities to movements to their target ratio, and because of changes in stock prices and profitability of firms, their target is subject to disparities

To a more realistic approach, researchers consider the existence of adjustment's costs, otherwise the optimal ratio should be the deb-to-equity ratio observed in the firm. Having in considerations these costs, and still following Myers (1984), companies cannot instantly counterbalance the events that drive away their capital structure from the optimum, they must consider, in one side the tax shield effect, and on the other the costs of financial distress. In this context, and in view of the tax shield advantage, firms that record high profits will have associate low debt, however, in accordance to Myers (2001), the contradictory relationship can be verified if managers explore the importance of the interest tax shield, i.e., firms with high profitability have more taxable income to shield, thus can take more debt deprived of risking financial distress.

According to Myers (1984), this philosophy sounds reasonable and defines an interior optimum debt ratio, although it does not fit well entirely to reality, because actual leverage ratios diverge wildly between similar companies, which lead us to reflect that there are other factors, still not studied, which are the source of such situation occurs.

However, according to Hennessy and Whited (2005), this static version of the trade-off theory sets aside the detail that companies make leverage decisions in view, at the same time, with investment decisions, which in turns depend on the current and anticipated financing boundaries. These authors have the purpose of exposing evidences against the static trade-off theory by emphasizing some of their findings, particularly, that there is no target leverage ratio.

Empirical studies on the trade-off model also cover the other side of the theory and consider rebalancing of leverage a dynamic process, through which firms will be more willing to increase leverage if their leverage is comparatively low (Leary and Roberts 2005). This type of model implies a readjustment of the capital structure toward a target ratio, that reflects the trade-off of the benefits and costs which were achieved through the previous version – static trade-off model. The main implication of this dynamic rebalancing for the empirical work, concerning financing choices, is that any force which presses the leverage to one of the boundaries increases the chance of beating that boundary and thus increases the probability of firms taking action by readjusting their leverage. It is predictable that the relation between the leverage level and the prospective of an adjustment in the current level to be negative. Another relevant matter in this theory is related to the fact that, previous adjustments in leverage have impact on the probability of future adjustments, being this influence a positive connexion between past leverage-decreasing (or increasing) decisions and the likelihood of upcoming leverage-increasing (or decreasing) choices.

However, according to these authors plus Fama and French (2002), the leverage issue is handled using partial adjustment models, which explains the slowness of the rebalancing process reaching the optimal leverage's range. The reality of the partial adjustments is due to the fact that, allowing the presence of adjustment costs, companies have to balance the extent to which the costs of readjusting the leverage beyond, or not, the benefits, and measure the impact on corporate financing policy.

2.3 Pecking Order Theory

The other theory that can explain capital allocation decisions is the pecking order theory, in which firms' manager favours internal resources as source of funding

(Myers 1984). When internal cash flow is not enough to support capital expenditures, firms will resort to debt instead of equity. The pure pecking order theory argues that companies do not have a distinct target of leverage ratio.

Behind the pecking order model, the underlying idea is one of asymmetric information - managers have inside information, which has influence in the manager's decisions concerning investing or not in a positive-NPV project, admitting that the two sources of capital to finance the project are issuing stocks or selling other marketable securities. If this private information is unfavourable to the old shareholder, managers will refuse to issue shares, even if this means lose an investment' chance.

One of the major implications of a model grounded on asymmetric information and managers acting in the interest of passive old shareholders (the pecking order model), according to Myers and Majluf (1984), is the tendency for firms to adopt a behaviour in which they prefer internal sources of fund rather than external sources, furthermore companies favour debt to equity if they have to resort to external financial sources, so that they do not dilute the equity of their current shareholders by selling new undervalued shares.

One limitation of the pecking order theory relates to the fact that it does not show how the asymmetric information can affect the financing policy, showing that each of the capital structure theories are best applied in some conditions and circumstances than in others.

2.4 Market-Timing Theory

As stated before, another possible theory in the context of the motivations behind the capital structure choice of the firms is the equity market timing theory, which, according to Baker and Wurgler (2002), happens when firms intentionally take

advantage of temporary fluctuations in the cost of equity relative to the others, and issue shares at high prices. For this theory there are two versions presented, being the first a dynamic form of Myers and Majluf (1984). The second version of the theory is related with irrational investors or managers and their insights of mispricing, i.e., managers will take advantage when the share price is below the fair one to issue equity and to repurchase shares when the price is higher than the fair market price.

The impact that market timing has on capital structure is significant in the long-term, because the capital structure is understood as the cumulative outcome of attempt to time the equity market and therefore produces persistent effects on the way in which companies allocate their capital resources. In accordance to this rationale the relevant conclusion to be drawn is that it does not exist an optimal capital structure in this theory.

Baker and Wurgler (2002) consider market timing the most usual explanation as a theory of capital structure. The main conclusion that they withdraw from this belief is that companies with lower leverage values tend to be the ones who raise more funds, when their market values are high and the inverse for high-leverage firms.

In the same domain, Welch (2004) considers that stock returns can enlighten a significant percentage of debt ratio dynamics. Therefore, he concludes that firm' capital structures change closely with variations in their own stock prices, underpinning the idea of market timing. For the other reasons that motivate debt ratio dynamics, Welch proposes corporate issuing motives as a plausible explanation, nonetheless he considers that it is still unexplained.

2.5 Other Theories

Researchers have been developing theories to support the behaviour of the companies regarding capital structure decisions, and besides Trade-off and Pecking Order theories, there are others, such as Managerial Hypothesis, Neutral Mutation Hypothesis or the Free Cash Flow Theory (which itself can be seen as an example of an agency benefit of debt).

Starting when the Managerial Entrenchment theory of Zwiebel (1996), this concept elucidates that high valuations and valuable investment chances eases financing through equity, but on the other hand, enables managers to become entrenched, i.e., managers select capital structure primarily to prevent the discipline of debt, because raising leverage sacrifices value of the firm which is not attractive for the shareholders, who may be tempted to replace the manager. This theory represents a model of dynamic capital structure that illustrates how unchallengeable managerial entrenchment influences a manager's capability to issue debt before times of financial constraints, in order to avoid projects with negative returns associated.

Going back to mention Baker and Wurgler, these authors ponder that there is an approximation between this theory and Market Timing theory, since managers also take advantage from high valuations to issue equity and do not subsequently readjust.

Regarding Neutral Mutation theory, which is presented by Miller (1977), it suggests that companies tend to get used to certain financing pattern, which have no significant influence on firm value; however someone who recognizes these habits tend to extrapolate conclusions about the corresponding financing behaviour.

The Free Cash Flow Theory highlights the agency relationship between equity holders and manager and following Jensen (1986), is designed for mature companies

that are disposed to overinvest. This theory supports that extremely high debt levels lean towards an increase in value, in spite of the financial distress, if the firm's cash flow surpass the earnings derived from their investment occasions. This argument can be framed also as an example of agency benefits of debt.

2.6 Main Determinants of Capital Structure Choice: Evidence

The empirical studies concerning financing policy of the companies, suggest there exists a set of attributes that determine the diversity of costs and benefits related to the sources of financing. The major determinants that affect the debt-equity choice, according to the diverse theories regarding capital structure and, particularly following Titman and Wessels' (1988) study, are asset structure, non-debt tax shield, firm's growth, sector/industry, uniqueness, company's size, profitability and volatility of the earnings. To represent these determinants a group of proxies are used which can vary depending on the researcher and his/her beliefs. However, in accordance to the same authors, the method of using proxies to represent the main determinants of capital structure involves some problems, namely the fact that the most commonly used attributes are unobservable, so it is difficult to find appropriated proxy variables, since in most cases researchers find several proxies to characterize one determinant/attribute. Another issue relates to a particular variable working well in terms of statistical criteria, but not so well in the interpretation of its significance levels and its tests.

The group of variables that I will use further in the study was chosen following Titman and Wessels (1988) as much as possible, with the necessary adjustments. Due to this fact, it becomes interesting to present the main results found by these authors, concerning the importance of the different variables mentioned in the paragraph above, on the level of the firm´s debt, which may be found in the

Appendix, Table 1. When examining Titman and Wessels's main results it is possible to notice that only attributes such as Uniqueness, Size and Profitability of the company are statistically significant, meaning that these are the firm's characteristics that have greater importance in the assignment's decisions of the company's capital. Moreover, the relation between these variables and the debt-to-equity ratio is noteworthy, which for these cases is negative, that is, the larger the company and its profitability as well as its uniqueness, the lower the tendency to this firm opting for a capital structure predominantly with debt, but rather the opposite.

In order to evaluate the statistical significance of each determinant over the capital structure of one firm, researchers have to express the dependent variable which will represent the value of leverage. Regarding this subject, the key point is to choose if the variable representative of debt-equity ratio will be measured in book values or in market values. On occasion, it is from this choice that arise different conclusions for dissimilar types of values used. Nonetheless, in accordance with Bowman (1980), the correlation between book and market values of debt is large, consequently the probability of an incorrect interpretation of the coefficients is minor, preventing a bias interpretation of the determinants' effect on debt ratio.

2.7 Capital Structure Choice Around the World: Evidence

In the previous sections of the literature review, we realize that specific determinants of firms are determinant to the level of leverage. However, besides firm-specific determinants there are differences across countries concerning capital structure, which reveals the importance of some country factors as determinants of capital structure. According to a survey from Jong et al. (2007), country-specific factors can have a direct and an indirect impact, through influence of firm-specific factors, on leverage. Some of the country-specific determinants that are considered

in this sort of analysis are of an institutional nature, which may include legal enforcement, shareholder/creditor right protection, market/bank-based financial system and development of stock and bond markets, and further, macroeconomic measures, such as gross domestic product (GDP). These authors found evidence that international capital structures are different across countries and that firm-specific determinants are also subject to the influence of the determinants regarding the country's firm.

The key findings, concerning the country's effect on the firm's capital structure, reported by Jong et al. (2007), suggest that credit right protection, GDP growth and the bond market performance have direct and significant impact on corporate debt to equity ratio. For another perspective, indirect impact, the researchers found that GDP growth remains statistically important to describe firm´s leverage, and beyond, legal enforcement and creditor/shareholders right protection.

Concluding, companies with a better legal environment and with more constant and prosperous economic situation are more susceptible to raise debt and this also implies a higher effect on the firm-specific factors of leverage. Thereby, country-specific factors are decisive in the corporate capital structure decision, which may explain the differences around the world, when examining the levels of debt accepted in a set of international companies.

3. Methodology and Data

3.1 Methodology

We will estimate a panel data-type of model in which we explain the leverage of a firm defined as the ratio of book value of debt to market value of equity, with a list of regressors that are firm-specific. In a second specification we consider the existence of a country effect. In order to assess the importance of the explanatory variables, I had to resort to an econometric analysis by performing linear regressions. The estimation used in this study was based on the panel data method, since the type of data collected were a mixture of cross-sectional and time series data - Pooled Data – insofar as the work analyzed data of numerous subjects, in this case firms, observed over several periods, specifically years. With panel data it is necessary to choose between fixed or random effects estimator. To decide the most appropriate, given the set of variables involved, and when necessary, I conducted a Hausman Test, which exhibits the variables' coefficients corresponding to a regression using fixed effects and random effects, and also the Chi-square statistic for the cross-section with random effects, so that the latter provide us elements to assess if the random effect is statistically significant such that it leads me to choose random effects specification. At last, when performing econometric analysis with pooled data, came the need to define the coefficient covariance method as white period because this hypothesis assumes that companies in the sample are independent among them and amend the heteroskedasticity phenomenon and also fix the autocorrelation of the variables in time for each company.

For a better understanding of the choices made by firms I consider three alternative definitions for the dependent variable (leverage). The three alternative dependent

variables considered in the analysis evaluate the capital structure of a company, and for that I choose the debt-to-equity ratio, but considering some variants. First, the debt-to-equity ratio is with book values, however the market value of equity give the stockholders a more up to date and realistic perspective of the company's equity, since book values are considered to be historical values and are often misleading because of being outdated. So I get to the second variant, which is the same ratio but in the denominator I used market value of equity. Finally, the last formulation of the dependent variable is founded on the previous one but replacing book value of debt by book value of net debt[3]. Observing the variation in the results using net debt instead of simple debt has become more popular as it gives a better notion of the "effective" indebtedness of the firm after using its current liquidity.

In what concerns the explanatory variables, I also consider some different regressions. For the first results I included only the firms-specific variables while in another I include the country-specific variables so that it is possible to analyze the separate effect of these two different kinds of variables in the capital structure.

We further examine the difference between countries subject to the "Troika" intervention and also examine different time sub-periods, according to the events associated with the recent financial crisis.

3.2 Sample

In order to assess the capital structure choices of firms we build a panel of 1453 firms coming from Amadeus Database and respectively from four countries (Germany, France, Ireland and Portugal) for the period 2003-2012 – a period that encompasses the pre and after subprime crisis that originated many fragilities in the

[3] Book value of net debt is the book value of debt minus the value of rubric of the assets "cash& cash equivalents".

financial sector of some European countries, which collapsed in the recent European financial crisis. Behind the selection of these four countries is the fact that two of these countries – Ireland and Portugal – were significantly affected by the European financial crisis, both were subject to an external intervention program imposed by "troika" and, on the contrary Germany and France managed to work around the unpleasant financial situation in which Europe was attracted. The selection of these four distinct economies has the purpose of making the analysis of the capital structure more complete and interesting because it covers two (if no more) different financial realities.

To achieve the final sample of firms, I collected information from all the listed companies from France, Germany, Ireland and Portugal and at that point all companies in financial services industry and in utility services were excluded, since these types of business are subject to specific regulation. As is common in the literature I identified a few companies as outliers. The criterion defined for the outliers was to remove 1% of the firms with the highest market values and 1% of the firms with the lowest market values.

We collected firm level data from two distinct sources, Amadeus' Database and DataStream Database. The majority of the firms' data that were essential for the regressions were book values, that I collected from Amadeus, however to a more realistic illustration of the leverage level of the firms, that will constitute the dependent variable, I decided to use equity market values in order to be more representative of the real situation of the firm, since the book value of equity is merely an historical value.

When considering the existence of a country effect, in the selection of the debt´s level, firms needs to pay attention to the economic and financial situation of the

country in which the company is installed, and to gather the data that reflect these conditions, I resort to the European Central Bank Statistical Data Warehouse and to The World Bank database.

The variables I use to recognize the motivations behind capital structure movements of the companies in my sample are subdivided into two distinct categories of variables, variables specific of the firms, such as structure of the company, non-debt tax shields, growth, uniqueness, industry, size and profitability and, variables specific of the firms' country of origin that comprises the country identification, GDP growth, the inflation rate, Consumer Price Index (CPI), employment rate and interest rates. All variables are presented and described in the appendix Table 2, as well as their summary statistics in Table 3 and correlations between each variables in Table 4 of the Appendixes.

4. Results: The Effect of the Firm's Characteristics and Country on Capital Structure Choice

We intend to examine if country of origin of a firm has an influence in its capital structure. Therefore, using our panel of firms from the four countries with annual data for the period 2003-2012, we start by estimating a regression in which the dependent variable is the leverage ratio and the explanatory variables are the country dummies. By so doing we are to identify differences across countries. These results are reported in Table 5 and comments made in subsection 4.1. We also consider the inclusion of the firm-specific variables mentioned above in section 3.1. These results are also presented in Tables 6 and 7, and comments in section 4.1.1.

As an alternative to using country dummies in order to capture the country effect, Table 8 presents the same analysis, but this time using as explanatory variables macroeconomic data of each country. These results are described in section 4.2

In order to examine if there are significant differences in the capital structure decision due to the international financial crisis, I re-estimate the most complete specifications (using firm-specific factors and country effects/ macroeconomic indicators as explanatory variables) for two sub-samples: for the before-crisis sub-period 2003-2007, and for 2008-2012. These results are presented in Tables 10, 11 and 12, which are discussed in section 4.3. For this analysis I consider only one specification of the dependent variable to proxy for leverage (the market value of debt to equity, MV_E) since this is the one that more closely represents the reality of the firms in their markets.

Before presenting the results of the study, it is important to highlight that the Hausman test was applied to determine whenever we should perform estimations using Random or Fixed Effects.

Another relevant remark concerns the fact that the regressions that include macroeconomic variables, namely GDP, Inflation, CPI, Employment and Interest Rate (that is, variables that do not vary across firms), cannot include time dummy variables, to avoid multicollinearity. In fact, the macroeconomic variables themselves translate the effects of the different economic environment due to the progress of time.

4.1 Results for Country Specific Variables Effect on Capital Structure Choice

To asses if country features have an impact in the way chosen by companies to finance their current operations I will examine the results obtained through the regressions using only country-variables. These results are in Table 5 and were estimated using random effects, since these types of variables do not change in time, so the fixed effect cannot be used to estimate the regressions.

The results indicate at large that Portuguese companies tend to operate with heavier levels of debt than German, French and Irish companies, which may reflect the burden of the macroeconomic environment on them. It is worth mentioning that the coefficients for Ireland and France are very similar (when compared to the benchmark country, Portugal) and statistically significant for the regressions that consider market values of leverage, suggesting that firms in these countries have lower levels of leverage than Portuguese firms. It is also worth mentioning that the German coefficients are not so clearly statistically significant (although negative in sign), suggesting a closer similarity to Portugal.

4.1.1 Results for Country Effect in Capital Structure Choice, Controlling for Firm Effects

It might be over-simplistic to run a regression of leverage on country variables alone. Hence, we perform the same analysis, but this time controlling for the firm-specific variables suggested as relevant by the literature[4]. These results are present in Tables 6 and 7, for the various specifications of the variable Leverage and using Random Effects. This analysis is reflected in two distinct tables because the country variable representativeness of Irish companies (dummy-variable) has no values for size and profitability (firms' variables) when it assumes the value 1, meaning that it is always zero[5]. Derived from the incompatibility between the two previous types of variables, Table 6 exclude the variables Size and Profitability1 and in Table 7 the variable Country_IE isn't included.

This analysis indicates that the country effects are significant, as before seen in Table 5, but on the other hand firm specific variables reveal some significance in just a few variables.

The statistically significant variables worth mentioning in both tables is the industry, to which a firm belongs when considering net debt in the capital structure ratio, transmitting the idea of manufacturing companies having lower debt-to-equity values comparing with remaining ones, possibly given the tax benefits that they already have with their amount of depreciations. Specifically for Table 7, the firm's size is also significant for the amount of leverage that companies opt for, since a larger dimension can be also associated with a more cohesive financial structure, giving these firms a higher credibility to resort to financing from credit institutions.

[4] For completeness we also ran regressions of Leverage on firm-specific variables only. Since these are not the focus of the dissertation, we chose not to tabulate those results, but they are available upon request.

[5] This scenario can be observed in the Appendix, Table 13, by observing the descriptive statistics of the country variable together with the two firm's variables.

The firms' country of origin, in the majority of the specification of leverage, is statically relevant to the capital structure choice, as we already found in Table 5 (Section 4.1) before controlling for the firm specific explanatory variables. This analysis confirms the previous comparison of the tendency of German, French and Irish companies relative to their Portuguese counterparts.

4.2 Results for the Effect of Macroeconomic Variables on the Capital Structure Choice

After briefly portraying the findings concerning the impact of the firm´s nationality in the selection of their appropriate capital structure, it is the time to ascertain whether macroeconomic factors themselves place any influence on the funding decisions of the companies, in a way that was not captured by the country dummies.

The group of macroeconomic variables that were selected encompasses items that depict the economic wealth of a country and the development's degree of its capital market, which are important considerations to take into account when analyzing the conditions of a market/country and that may have implications in the way how companies fund themselves.

Since in this regressions was possible to estimate both with RE and FE, I performed an Hausman test and once I analyzed the output[6], I determine, regarding effect specification of cross-sectional information, that FE are more appropriate because at the 10% significance level the random effect was not statistically significant, and coefficients provided by the regressions with fixed effect proved to be higher than using random effects.

When observing Table 8 (for the three definitions of leverage and for both random or fixed effects estimation) we find that GDP growth is the country variable that

[6] To check the output of the Hausman test consul the Appendix, Table 14.

most stands out, since, at 1% of significance level, it shows that the higher the growth on the GDP of a country, the smaller is its firms' tendency to have high levels of debt. This finding illustrates what is expected to occur in companies from countries with higher annual generation of GDP. Since those companies are the ones that contribute to the growth of the GDP, it makes sense to say that we are talking about companies with high capacity to produce revenues and therefore great availability of capital to finance themselves without resorting to a third party. Beyond the GDP growth, Inflation rates, CPI and Employment rate in each country prove to be statically significant, when considering market values for equity in the debt-to equity ratio. Starting with estimation using RE, the variable representativeness of the inflation rate, what we can take from their coefficient is that, as in reality, companies that face inflation have higher volumes of sales, in value, whereby their results will be higher, which give to these companies more freedom of action to finance their operations with their own resources, having lower values for debt comparing to equity. As for the Employment rate, it proves to be significant to explain the capital structure of firms, wherein the higher the level of employment in a country, the lowest is the value of external funding. This may be a sign of the overall market/economy being more confident in times of higher employment, which may lead firms to fear bankruptcy less, and therefore engage in higher leverage.

Concerning the estimation with FE, we noticed that GDP and Inflation remain statistically significant and instead of the Employment, CPI stands out as a significant variable at the 5% significance level, affecting positively the leverage of a firm: companies in countries that have lower values for the CPI, which is normally taken as a measure that symbolizes the average change of the prices level paid by

the consumers, over time in the economy, for consumer goods and services. In the current study this variable exerts a positive influence in the choice of the leverage ratio. This might be due to the fact that the whole period under analysis has been a particularly low inflation period in Europe. In any case this variable was significant in one specification only.

4.2.1 Controlling for Firm-Specific Effects

Using the same rationale as in sub-section 4.1.1 we also control for firm-specific explanatory variables in Table 9.

These set of regressions reveal that there are some firm's characteristic as well as macroeconomic factors that are important for companies to make decisions concerning their capital structure in order to achieve the one more appropriate to their condition.

In this specific analysis numerous firm's features prove to be statistically significant, starting with the firm 'size which proves to be positively influential for the level of leverage, suggesting that larger firms incur in higher levels of debt as they tend to be more diversified and present lower chances of bankruptcy, consequently facing lower financial distress costs.

Also, we noticed that other variables appear interesting to the study. Beginning with assets´ structure of the company, the data confirms what is suggested by the theory, which is that companies with more intangible assets, comparing to the ones that have more tangibles, have a tendency to be less levered because they have in their possession fewer assets that can be perceived as collaterals for loans, and face stronger asymmetric information and potential for adverse selection when raising external capital. The other statistically significance variable, Non-Debt Tax Shields, does not present the expected sign, but it is also a less clearly interpretable variable

anyway, as we knew from the start of the study when data were collected. Besides these factors, the ratio between the ratio of the market value of a company to its accounting value – Uniqueness – seems to cause a negative impact on the leverage ratios chosen by firms, meaning that overvalued companies possibly appeal to debt in last resource, giving preference to internal funding sources, which promotes the pecking order theory philosophy.

The upcoming variables that deserve highlight, due to their significance for the funding‘s problem, are our variables of interest in this study, the ones related to the features of the country of origin of the companies. As noted earlier, GDP and Inflation again appear as important variables to explain the capital allocation that this study examines, confirming our results from Table 8, before controlling for firm specific variables. Interestingly, as opposed to what happened in table 8 of section 4.2, CPI is no longer statistically important (not even at 10% significance), but instead the variable employment reinforces its significance, indicating that countries with better employment rates tend to have companies more comfortably financed with debt.

4.3 Results by subsamples – before and after the crisis

Since the period under analysis encompasses two distinct moments regarding the economic situation in some European countries, including those in this sample, it emerges as interesting to check if some variables become more significant to the model when changing the time period of analysis, since we know that it is expectable to record some changes in the firms’ method of operating in order to adapt to the external environment.

Therefore we repeat our estimations for the most complete specifications of Tables 6 and 7 (using country variables) and 8 (using macroeconomic factors) by splitting the

sample into two sub-periods. The first period is 2003-2007, and tries to assess capital structure choices made before the international financial crisis. The second period is 2008-2012 and tries to capture the capital structure of firms after the crisis emerges.

Once again, since the variable representative of the Irish companies is inconsistent, for estimation proposes, with the firm's variables size and profitability, as mentioned in section 4.1.1, were performed two analyses, in Tables 10 and 11.

Regressions in Tables 10 and 11 find represented both firm and country effects during the two sub-period. Starting with the analysis in Table 10, in the first sub period (2003-2007) the firm' structure, level of growth, non-debt tax shield and size do appear again as significant variables to explain the amount of leverage compared to equity. Besides these three, uniqueness also performs as one of the factors that are relevant to explain the model and is expected to be negatively related to debt ratio. This variable is a Tobin's Q ratio, which can be interpreted along the lines of a certain company that is overvalued (or on the contrary undervalued) in the market, giving a notion of the future potential growth of the companies. Along with the previously mentioned firm variables, all country variables prove to be significant.

Moving to the second sub period, concerning firm-specific variables, the non-debt tax shield and the growth of the companies are no longer noteworthy of consideration in the capital subject. This might happen because the international financial crisis affected most of the companies, even those with a more stable financial structure, regularly associated with their bigger dimension. Because of this, these two firm factors ceased to have significance in the amount of debt in their capital structure. The assets' structure remains significant, however with a opposite sign, since the most obvious relation should be positive – more tangible assets lead

to more collateral available to companies present as guarantee to raise more debt. However a plausible justification for this outcome is that, after the crisis the market value of firms with more intangible assets drops so that the debt-to-equity ratio becomes higher, simply because of the fall of the market value of equity caused by an overall mistrust in the market. In any case the coefficients are only marginally significant which weakens their interpretation.

Regarding country variables, firms from the other countries in the sample tend to have lower levels of leverage comparing to Portuguese companies. However, in the second sub period the coefficient for German companies (comparing to Portuguese ones) is no longer statistically significant to explain the capital structure.

Table 11, concerning first sub period, reveals as significant factors the non-debt tax shield, dimension of companies' growth, size and profitability and the three country variables, as in the previous estimation. However for the last sub period, only the assets' structure and growth prove to be statistically significant but again with the opposite sign, when compared to the first sub period. That is again, an interesting observation that suggests that the sub-periods are indeed different, and correspond to different outcomes in terms of firms' capital structures.

Observing the final model specification estimated in Table 12 we conclude that during the period 2003-2007 the variables growth and profitability 1 are statistically significant together with all macroeconomic factors, except for the interest rates. When moving to the analysis of the post-crisis period, the company size is the only factor that remains important, the assets' structure and uniqueness become significant in this sub-period. We view these results as indication of change in the pattern of financing of firms in Europe from one sub-period to the next.

In what concerns the macroeconomic factors, they remain significant in the 2008-2012 sub-period, and the interest rate variable itself becomes significant. This outcome is understandable since when one international financial crisis emerges, the most obvious repercussions are felt in the macroeconomic environment, so variables such as GDP, Inflation, CPI, Employment rates and interest rates that measure the condition of the economy, are expected to be particularly statistically significant in time of crisis, in the weighting of companies when making choices related to their capital structure.

Conclusions

This dissertation is devoted to theme related to how distinct companies choose their capital structure and in what manner firm and country factors influence this corporate decision. Another pertinent point addressed in this work is associated with the relevance of the financial crisis in the capital structure adopted by firms (during different periods in time).

Throughout the analysis of the previous empirical research I found evidence that those companies follow different funding strategies according to their purposes and beliefs, either relying on the Trade-off Theory, the Pecking order theory, the Market Timing theory or others. When resorting to other research papers concerning the capital structure theme it is also observable that there exists a number of firm factors that directly affect the capital structure choice of a firm, which in some cases reinforce the results achieved in this thesis. Uniqueness (i.e., the presence of intangible assets) and size were some of the firms' features that emerged as being relevant to the choice of capital structure when I analysed previous literature that also proved to be meaningful in the outcomes extracted from the analysis of the impact of firm and country factors in the capital structure choice in section 4.1.1. Besides this variable, the industry in which a firm operates is also shown to be significant in this analysis. Apart from these firms' characteristics, the results obtained in the analysis of the influence of firm and macroeconomic variables on the leverage choice – in section 4.2.1- show us that the companies' asset structure and the non-debt tax shield are statically significant as well as the uniqueness and size, already mentioned above.

In addition to the research papers about methods and determinants of capital structure, another stream of literature examined for the purpose of this master

dissertation also emphasized the fact that there are country-specific factors and macroeconomic variables that may influence, directly or indirectly, the companies' decisions concerning leverage, since not all countries have the same macroeconomic environment. The main conclusion withdrawn from previous literature, regarding capital structure choices around the world, matches the results obtained in this dissertation – different companies native from distinct countries tend to choose dissimilar structure for their capital – which revealed that the fact that the company in analysis is German, French or Irish has a statistical influence when choosing their debt-to-equity value, comparing to Portuguese companies. Furthermore, some macroeconomic factors, namely GDP, Inflation, CPI and Employment, proved to be worthy of attention, since firms tend to choose divergent forms of capital structure according to the environment that their country offers.

The other purpose established for this master thesis was to identify if the beginning of the financial crisis carried with it changes in the weight of the firm and country factors which companies use to ponder their ideal capital structure. By the examination of the results achieved along the work it is apparent that the crisis implemented a few changes in the significance and impact of the different variables in the explanation of the leverage ratio. The most evident ones were in the macro economic variables, since after the crisis all of the macro variables used in this study became statistically significant (see Table 12). This empirical result probably reflects the intuitive idea that the early signs of a crisis are reproduced in the economics' sphere. In a way the macroeconomic variables represent the economic performance of a country, and it is expected that these are the first to suffer modifications.

Beyond the changes reported in the last paragraph, the results also reflected some changes in few firms' features. The size of the companies turned to be one of the most statistically significant variables to the analysis, during the period of crisis, most likely because companies that record more enhanced sales values are also more solid companies, therefore have higher capacity to ask for debt in controversial times. Structure of the assets showed a growing relevance after the international financial crisis since companies with more collaterals are more susceptible to secure external funding, primarily with hard economic conditions. On the contrary the growth achieved by a company became not so relevant for the study.

After all results being analysed and interpreted it is crucial to recognize constrains that emerged during this study so they can be surpassed in subsequent investigations. One of the major difficulties had to do with the matching of the data, since this dissertation used market and book values and I had to resort to two distinct databases. Still about data, the quality of the data gathered was questioned due to apparently unreasonable values for some variables. Despite the data constraints mentioned, which may limited the validity of some of our results, a serious effort was made in order to choose a representative sample of companies that belong to two distinct types of countries in terms of economy performance.

In a more positive note, this dissertation opens the way for future work in which a finer analysis with better quality data and for a longer time period will permit the identification of a potential structural break in the choice of capital mix of firms in different European countries due to the global financial crisis.

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Table 1 - Summary of variables and results used in Titman and Wessels' Research paper.

Variables	Relation with the Dependent Variable[7]	Statistical Significance
Asset Structure	Almost Null (Market Values)/Negative (Book Values)	No
Non-Debt Tax Shield	Negative	No
Firm´s Growth	Negative (Market Values)/Positive (Book values)	No
Industry/Sector	Negative	No
Uniqueness	Negative	Yes
Company's Size	Negative	Yes
Profitability	Negative	Yes (Market Values)/No (Book Values)
Volatility of the Earnings	Negative	No

[7] Titman and Wessels use two variations of dependent variables, both to represent debt. For the authors debt can be typify by the ratio between long-term debt and equity; ratio between short-term debt and equity; For the first variation, in the denominator are used market values and in the second book values. Note that the attributes can establish different relations with the dependent variable, depending on the values that are being used – market or book values.

Table 2 - Definition of Variables

Variables	Definition
MV_DE	Ratio between book value of debt and market value of equity.
BV_DE	Ratio between book value of debt and book value of equity
Net_DE	Ratio between book value of net debt (debt minus cash & cash equivalents) and market value of equity.
Structure	Ratio between book value of intangible assets and the book value of total assets.
TShields	Non-Debt Tax Shields computed as the ratio between book value of depreciations & amortizations and total assets.
Growth	Variation in percentage of the total assets' value.
Uniqueness2	Ratio between the market value and book value of equity.
Industry	Dummy-variable for industry classification. For companies with industry's code between 1000 and 3320 has the value 1, and otherwise has 0 as value.
Country_DE	Dummy-variable with value 1 for German companies, 0 otherwise.
Country_FR	Dummy-variable with value 1 for French

Country_IE	companies, 0 otherwise. Dummy-variable with value 1 for Irish companies, 0 otherwise.
Country_PT	Dummy-variable with value 1 for Portuguese companies, 0 otherwise.
Size	Logarithm of total sales.
Profitability1	Ratio between EBIT and total sales.
GDP	Annual percentage growth of the GDP in each country.
Inflation	Annual inflation rate in each country.
CPI	Consumer Price Index, which measure fluctuations in the price level of a market basket of consumer goods and services acquired by families.
Employment	Annual Employment rate in each country.
Interest	Annual interest rate in each country.

Table 3 - Summary Statistics

This table presents the descriptive statistics of all variables used in the study – dependent variables, firm-specific and country-specific variables. The sample period is from 2003 to 2012.

	Mean	Median	Standard Deviation	Maximum	Minimum	Number of Observations
MV_DE	1,155	0,348	5,957	389,205	0,000	6040,000
BV_DE	1,033	0,406	11,355	702,385	-48,949	8465,000
Net_DE	0,484	0,061	5,616	335,511	-131,143	6500,000
Structure	0,156	0,067	0,456	36,722	-0,016	9875,000
Tshields	0,058	0,032	0,739	64,508	-0,093	9151,000
Growth	0,024	0,382	0,648	1,000	-36,233	8694,000
Uniqueness2	0,048	0,001	1,277	44,348	-0,046	6873,000
Industry	0,211	0	0,408	1,000	0,000	12390,000
Size	4,670	4,672	1,092	7,886	-1,569	9032,000
Profitability1	-7,229	0,057	528,204	806,391	-49290,667	9013,000
Country_DE	0,487	0,000	0,500	1,000	0,000	12390,000
Country_FR	0,450	0,000	0,497	1,000	0,000	12390,000
Country_IE	0,045	0,000	0,208	1,000	0,000	12390,000
Country_PT	0,018	0,000	0,132	1,000	0,000	12390,000
GDP	1,245	-5,145	2,377	6,080	-6,384	11151,000
Inflation	1,722	1,736	0,889	4,880	-4,480	11151,000
CPI	104,465	106,101	5,044	116,076	95,507	12390,000
Employment	56,500	51,900	2,283	60,700	50,600	11151,000
Interest	3,439	3,483	1,045	13,080	1,300	12390,000

Table 4 - Correlations Matrix

This table reports the correlation between explanatory variables (firm and country-specific variables and macro variables).

	MV_DE	BV_DE	NET_DE	INDUSTRY	STRUCTURE	TSHIELDS	GROWTH	UNIQUENESS2	PROFITABILITY1	SIZE	COUNTRY_DE	COUNTRY_FR	COUNTRY_IR	GDP	INFLATION	CPI	EMPLOYMENT	INTEREST
MV_DE	1,000	0,000	0,989	0,062	-0,018	-0,008	-0,014	-0,008	0,002	0,262	0,113	-0,109		-0,001	-0,019	-0,009	0,074	-0,026
BV_DE	0,000	1,000	0,000	-0,007	0,020	-0,006	-0,003	0,357	0,001	0,006	-0,015	0,010		-0,006	0,017	0,001	-0,001	0,012
NET_DE	0,989	0,000	1,000	0,056	-0,015	-0,007	-0,009	-0,007	0,002	0,235	0,098	-0,095		0,001	-0,014	-0,012	0,061	-0,019
INDUSTRY	0,062	-0,007	0,056	1,000	-0,160	0,026	-0,006	-0,012	-0,008	0,077	0,075	-0,087		0,004	0,003	-0,006	0,073	-0,001
STRUCTURE	-0,018	0,020	-0,015	-0,160	1,000	0,128	0,022	-0,027	0,010	0,109	-0,108	0,109		-0,031	-0,005	0,067	-0,063	0,002
TSHIELDS	-0,008	-0,006	-0,007	0,026	0,128	1,000	-0,317	0,004	-0,007	-0,061	0,057	-0,061		-0,009	0,007	0,011	0,051	-0,023
GROWTH	-0,014	-0,003	-0,009	-0,006	0,022	-0,317	1,000	0,006	0,046	0,081	-0,031	0,033		0,119	0,056	-0,093	-0,062	0,060
UNIQUENESS2	-0,008	0,357	-0,007	-0,012	-0,027	0,004	0,006	1,000	-0,003	-0,080	0,013	-0,016		0,012	0,016	0,014	0,027	-0,013
PROFITABILITY1	0,002	0,001	0,002	-0,008	0,010	-0,007	0,046	-0,003	1,000	0,085	-0,015	0,015		-0,013	-0,004	-0,018	-0,025	0,023
SIZE	0,262	0,006	0,235	0,077	0,109	-0,061	0,081	-0,080	0,085	1,000	0,056	-0,045		0,029	0,022	-0,013	0,031	-0,025
COUNTRY_DE	0,113	-0,015	0,098	0,075	-0,108	0,057	-0,031	0,013	-0,015	0,056	1,000	-0,957		0,103	-0,017	0,036	0,752	-0,275
COUNTRY_FR	-0,109	0,010	-0,095	-0,087	0,109	-0,061	0,033	-0,016	0,015	-0,045	-0,957	1,000		-0,085	-0,008	-0,043	-0,821	0,166
COUNTRY_IR																		
GDP	-0,001	-0,006	0,001	0,004	-0,031	-0,009	0,119	0,012	-0,013	0,029	0,103	-0,085		1,000	0,529	-0,150	0,053	0,026
INFLATION	-0,019	0,017	-0,014	0,003	-0,005	0,007	0,056	0,016	-0,004	0,022	-0,017	-0,008		0,529	1,000	0,066	0,074	-0,001
CPI	-0,009	0,001	-0,012	-0,006	0,067	0,011	-0,093	0,014	-0,018	-0,013	0,036	-0,043		-0,150	0,066	1,000	0,392	-0,528
EMPLOYMENT	0,074	-0,001	0,061	0,073	-0,063	0,051	-0,062	0,027	-0,025	0,031	0,752	-0,821		0,053	0,074	0,392	1,000	-0,378
INTEREST	-0,026	0,012	-0,019	-0,001	0,002	-0,023	0,060	-0,013	0,023	-0,025	-0,275	0,166		0,026	-0,001	-0,528	-0,378	1,000

Table 5 - Results for Country Specific Variables Effect on the Capital Structure Choice

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	MV/DE	BV/DE	NET/DE
C	3.123 (4.243)	1.389 (1.869)	2.371 (3.440)
Industry			
Structure			
Tshields			
Growth			
Uniqueness2			
Size			
Profitability1			
Country_DE	-0.781 (-1.317)	0.480 (1.157)	-1.513*** (-2.569)
Country_FR	-1.879*** (-3.532)	-0.274 (-1.203)	-1.886*** (-3.517)
Country_IE	-1.876*** (-3.420)	-0.178 (-0.619)	-1.882*** (-3.430)
GDP			
Inflation			
CPI			
Employment			
Interest			
N	6040	8465	6500
Random Vs Fixed Effects	Random	Random	Random
R^2	0.008	0.001	0.002
Time Dummy	Yes	Yes	Yes

Table 6 - Results for Firm and Country Effects in the Capital Structure Choice

(Without the firm variables: Size and Profitability1)

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	MV/DE	BV/DE	NET/DE
C	-167.949 (-1.805)	-141.214 (-1.017)	-39.478 (-0.472)
Industry	-0.189 (-0.714)	0.177 (0.346)	-0.495* (-1.781)
Structure	-1.096 (-1.540)	-1.046 (-1.398)	-0.102 (-0.171)
Tshields	0.361 (0.705)	0.234 (0.250)	0.077 (0.214)
Growth	-0.142 (-0.263)	-0.170 (-1.026)	-0.163 (-0.537)
Uniqueness2	-0.530** (-2.306)	9.345 (0.748)	-0.165 (-1.282)
Size			
Profitability1			
Country_DE	-0.873 (-1.460)	0.027 (0.056)	-1.682*** (-2.799)
Country_FR	-1.949*** (-3.595)	-0.187 (-0.501)	-2.044*** (-3.648)
Country_IE	-1.821*** (-3.257)	-0.15 (-0.417)	-1.954*** (-3.407)
GDP			
Inflation			
CPI			
Employment			
Interest			
N			
Random Vs Fixed Effects	Random	Random	Random
R^2	0,006	0,001	0,002
Time Dummy	No	No	No

Table 7- Results for Firm and Country Effects in the Capital Structure Choice

(Without the country variable: Country_IE)

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	MV/DE	BV/DE	NET/DE
C	-163.359	-146.790	-33.896
	(-1.738)	(-1.033)	(-0.409)
Industry	-0.300	0.161	-0.585*
	(-1.015)	(0.294)	(-1.876)
Structure	1.454	-1.073	-0.222
	(-1.744)	(-1.561)	(-0.308)
Tshields	0.755	0.055	-0.076
	(1.496)	(0.047)	(-0.165)
Growth	-0.207	-0.156	-0.310
	(-0.358)	(-0.895)	(-0.737)
Uniqueness2	-0.280	9.303	-0.084
	(-2.445)	(0.748)	(-1.117)
Size	0.511***	-0.080	0.176
	3.008	(-0.473)	(1.020)
Profitability1	8.61E-05	-0.007	-0.002
	0.116778	(-1.490)	(-1.130)
Country_DE	-0.865***	-0.010	-1.696***
	(-1.371)	(-0.022)	(-2.740)
Country_FR	-2.003***	-0.220	-2.095***
	(-3.454)	(-0.593)	(-3.656)
Country_IE			
GDP			
Inflation			
CPI			
Employment			
Interest			
N	5072	5072	5399
Random Vs Fixed Effects	Random	Random	Random
R^2	0,008	0,009	0,002
Time Dummy	No	No	No

Table 8 - Results for the Effect of Macroeconomic Variables on the Capital Structure Choice

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	MV/DE	BV/DE	NET/DE	MV/DE	BV/DE	NET/DE
C	-6.313638 (-1.851)	-2,583 (-0.543)	-0.784 (-0.275)	0.475 (0.137)	2.820 (0.296)	2.806 (0.951)
Industry						
Structure						
Tshields						
Growth						
Uniqueness2						
Size						
Profitability1						
Country_DE						
Country_FR						
Country_IE						
GDP	-0.058*** (-5.498)	-0.033 (-0.567)	-0.038*** (-4.106)	-0.057*** (-4.828)	-0.024 (-0.734)	-0.037*** (-3.576)
Inflation	-0.098*** (-2.955)	-0.033 (-0.400)	0.010 (0.342)	-0.067** (-2.008)	-0.033 (-0.659)	0.021 (0.706)
CPI	0.015 (1.177)	-0.020 (-0.894)	0.004 (0.390)	0.028** (2.027)	-0.011 (-0.458)	0.010 (0.799)
Employment	0.119** (2.267)	0.115* -1,893	0.016 (0.344)	-0.031 (-0.594)	-0.004 (-0.026)	-0.059 (-1.317)
Interest	-0.082 (-0.812)	-0.058 (-0.502)	-0.021 (-0.243)	-0.143 (-1.217)	-0.103 (-0.763)	-0.081 (-0.830)
N	5581	7822	6017	5581	7822	6017
Random Vs Fixed Effects	Random	Random	Random	Fixed	Fixed	Fixed
R^2	0,004	0,000	0,001	0,393	0,228	0,464
Time Dummy	No	No	No	No	No	No

Table 9 - Results for Firm and Macroeconomic Effects in the Capital Structure Choice

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	MV/DE	BV/DE	NET/DE
C	-11.323	-2.540	-11.323
	(-2.728)	(-0.961)	(-2.728)
Industry	-0.255	0.163	-0.255
	(-0.876)	(0.298)	(-0.876)
Structure	-1.570**	-1.018	-1.570**
	(-1.945)	(-1.584)	(-1.945)
Tshields	1.146**	-0.021	1.146**
	(2.218)	(-0.017)	(2.218)
Growth	-0.090	-0.134	-0.090
	(-0.159)	(-0.759)	(-0.159)
Uniqueness2	-0.270**	9.246	-0.270**
	(-2.069)	(0.746)	(-2.069)
Size	0.498***	-0.084	0.498***
	(2.989)	(-0.482)	(2.989)
Profitability1	0.001	-0.006	0.001
	(1.205)	(-1.464)	(1.205)
Country_DE			
Country_FR			
Country_IE			
GDP	-0.066***	-0.040**	-0.066***
	(-5.645)	(-1.799)	(-5.645)
Inflation	-0.100***	0.112	-0.100***
	(-2.840)	1.415	(-2.840)
CPI	0.010	0.006	0.010
	(0.855)	(0.458)	(0.855)
Employment	0.183***	0.070	0.184**
	(2.518)	(1.332)	(2.518)
Interest	-0.062	-0.195	-0.062
	(-0.454)	(-0.944)	(-0.454)
N	5071	5071	5071
Random Vs Fixed Effects	Random	Random	Random
R^2	0,008	0,01	0,001
Time Dummy	No	No	No

Table 10 - Results by subsamples for Firm and Country Effects in Capital Structure

(Without the firm variables: Size and Profitability1)

This table contains estimates for two sub periods 2003-2007 and 2008-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	Sub-period 1	Sub-period 2
	MV/DE	MV/DE
C	237.183	-314.733
	(5.238)	(-1.237)
Industry	0.004	-0.265
	(0.024)	(-0.774)
Structure	0.498*	-1.511*
	(1.698)	(-1.798)
Tshields	1.731**	-0.584
	(2.217)	(-0.620)
Growth	0.601***	-0.074
	(2.985)	(-0.146)
Uniqueness2	-2.171**	-0.594**
	(-2.279)	(-2.448)
Size		
Profitability1		
Country_DE	-1.064*	-0.938
	(-1.851)	(-1.338)
Country_FR	-1.852***	-2.110***
	(-3.363)	(-3.429)
Country_IE	-1.866***	-1.900***
	(-3.357)	(-2.993)
GDP		
Inflation		
CPI		
Employment		
Interest		
N	1932	3321
Random Vs Fixed Effects	Random	Random
R^2	0,049	0,006
Time Dummy	No	No

Table 11 - Results by subsamples for Firm and Country Effects in Capital Structure

(Without the country variable: Country_IE)

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	Sub-period 1	Sub-period 2
	MV/DE	MV/DE
C	263.859	-398.820
	(5.875)	(-0.996)
Industry	-0.017	0.375
	(-0.093)	(0.452)
Structure	0.368	-0.907*
	(1.152)	(-1.907)
Tshields	1.660**	-1.006
	(2.087)	(-0.547)
Growth	0.622***	-0.469**
	(2.847)	(-1.970)
Uniqueness2	-1.054	8.958
	(-1.259)	(0.732)
Size	0.269*	-0.184
	(1.906)	(-0.639)
Profitability1	0.003***	-0.014
	(6.798)	(-1.028)
Country_DE	-1.056*	1.019
	(-1.785)	(0.903)
Country_FR	-1.898***	0.661
	(-3.332)	(0.642)
Country_IE		
GDP		
Inflation		
CPI		
Employment		
Interest		
N	1887	3185
Random Vs Fixed Effects	Random	Random
R^2	0,055	0,010
Time Dummy	No	No

Table 12 - Results by subsamples for Firm and Macroeconomic Effects in Capital Structure

This table contains estimates, using three distinct specifications for the variable that measures the leverage' level of firms, for the period 2003-2012. The table contains the estimated coefficients for each variable and the t-statistics inside brackets.

	Sub-period 1	Sub-period 2
	MV/DE	MV/DE
C	-0.404	-36.568
	(-0.176)	(-2.512)
Industry	0.015	-0.396
	(0.087)	(-1.000)
Structure	0.333	-1.955**
	(1.030)	(-1.983)
Tshields	1.644*	0.200
	(2.073)	(0.230)
Growth	0.623***	-0.071
	(2.917)	(-0.132)
Uniqueness2	-1.166	-0.330**
	(-1.512)	(-2.079)
Size	0.242*	0.570***
	(1.775)	(2.827)
Profitability1	0.003***	-0.001
	(6.191)	(-0.228)
Country_DE		
Country_FR		
Country_IE		
GDP	-0.102**	-0.086***
	(-2.521)	(-3.376)
Inflation	-0.240*	-0.180***
	(-1.952)	(-4.914)
CPI	-0.129***	0.178**
	(-3.834)	(2.238)
Employment	0.256***	0.298***
	(3.270)	(2.662)
Interest	0.091	0.212**
	(0.825)	(2.507)
N	1886	3185
Random Vs Fixed Effects	Random	Random
R^2	0,054	0,011
Time Dummy	No	No

Table 13 - Evidence of incompatibility between variable Country_IE and the firm – specific variables – Size and Profitability1

This table contains the descriptive statistics for three variables – Country_IE, Size and Profitability1.

	Country_IE	Size	Profitability1
Mean	0.000	4.672	-7.229
Median	0.000	4.674	0.057
Maximum	0.000	7.886	806.391
Minimum	0.000	-1.568	-49290.67
Std. Dev.	0.000	1.091	528.204
Skewness	NA	-0.288	-90.580
Kurtosis	NA	4.084	8416.854
Jarque-Bera	NA	566.445	2.66E+10
Probability	NA	0.000	0.000
Sum	0.000	42109.63	-65157.63
Sum Sq. Dev.	0.000	10725.34	2.51E+09
Observations	9013	9013	9013

Table 14 - Hausman Test

This table shows the output of the statistical hypothesis test -Hausman Test - performed in order to evaluate the significance of both estimators (RE and FE) to know which is the more appropriated for the estimation.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000	5	1.000